SEQUENCE LISTING

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      VAN THIELEN, NOCHA
      CHEN, ROUYING
      SARRIA-MILLAN, RODRIGO

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420 425 430

Tyr Ile Asp Cys Val His Val Lys Lys Ser Asp Arg Gly Arg Leu Gln
435 440 445

Thr Glu Asp Pro Met Glu Met Asp Lys Glu Asn Asp Met Tyr Ala Gly
450 455 460

Tyr His Glu Ser Asp Thr Ser Glu Ala Ala Asn Glu Ala Lys Ile Gln
465 470 475 480

Lys Leu Lys Glu Leu Ser Lys Leu Pro Gly Ile Tyr Asp Arg Leu Ser
485 490 495

Arg Ser Leu Ala Pro Ser Ile Trp Glu Leu Glu Asp Ile Lys Lys Gly
500 505 510

Leu Leu Cys Gln Leu Phe Gly Gly Lys Ala Lys Lys Ile Pro Ser Gly
515 520 525

Ala Ser Phe Arg Gly Asp Ile Asn Val Leu Leu Val Gly Asp Pro Gly
530 535 540

Thr Ser Lys Ser Gln Leu Leu Gln Tyr Val His Lys Ile Ala Pro Arg
545 550 555 560

Gly Ile Tyr Thr Ser Gly Arg Gly Ser Ser Ala Val Gly Leu Thr Ala

565 570 575

Tyr Val Thr Lys Asp Pro Glu Thr Arg Glu Thr Val Leu Glu Ser Gly
580 585 590

Ala Leu Val Leu Ser Asp Arg Gly Ile Cys Cys Ile Asp Glu Phe Asp
595 600 605

Lys Met Ser Asp Asn Ala Arg Ser Met Leu His Glu Val Met Glu Gln
610 615 620

Gln Thr Val Ser Val Ala Lys Gly Gly Ile Ile Ala Ser Leu Asn Ala
625 630 635 640

Arg Thr Ser Val Leu Ala Cys Ala Asn Pro Ser Gly Ser Arg Tyr Asn
645 650 655

Ala Arg Leu Ser Val Ile Asp Asn Ile Gln Leu Pro Pro Thr Leu Leu
660 665 670

Ser Arg Phe Asp Leu Ile Tyr Leu Met Leu Asp Lys Pro Asp Glu Gln
675 680 685

Asn Asp Arg Arg Leu Ala Arg His Leu Val Ala Leu His Tyr Glu Asn
690 695 700

Tyr Glu Val Ser Lys Gln Asp Ala Leu Asp Leu Gln Thr Leu Thr Ala
705 710 715 720

Tyr Ile Thr Tyr Ala Arg Gln His Val His Pro Thr Leu Ser Asp Glu
725 730 735

Ala Ala Glu Asp Leu Ile Asn Gly Tyr Val Glu Met Arg Gln Lys Gly
740 745 750

Asn Phe Pro Gly Ser Ser Lys Lys Val Ile Thr Ala Thr Pro Arg Gln
755 760 765

Leu Glu Ser Met Ile Arg Ile Ser Glu Ala Leu Ala Arg Met Arg Phe
770 775 780

Ser Glu Val Val Glu Lys Val Asp Ala Ala Glu Ala Val Arg Leu Leu
785 790 795 800

Asp Val Ala Leu Gln Gln Ser Ala Thr Asp His Ala Thr Gly Thr Ile
805 810 815

Asp Met Asp Leu Ile Thr Thr Gly Val Ser Ala Ser Glu Arg Ile Arg
820 825 830

Arg Ala Asn Leu Leu Ala Ala Leu Arg Glu Leu Ile Ala Asp Lys Ile
835 840 845

Ser Pro Gly Ser Ser Ser Gly Leu Lys Thr Ser Gln Leu Leu Glu Asp
850 855 860

Ile Arg Ser Gln Ser Ser Val Asp Val Ser Leu Gln Asp Ile Lys Asn

865 870 875 880

Ala Leu Gly Ser Leu Gln Gly Glu Gly Phe Leu Thr Val His Gly Asp
885 890 895

Ile Val Lys Arg Val
900

<210> 9
<211> 698
<212> PRT
<213> Physcomitrella patens

<400> 9
Met Ala Ser Ala Thr Ala Ala Thr Met Ala Ser Leu Leu Thr Pro Gly
1 5 10 15

Ser Leu Arg Arg Gly Leu Gly Ser Gln Glu Ser Ser Thr Gln Phe Ala
20 25 30

Pro Leu Ala Gly Pro Arg Lys Thr Ser Val Ser Arg Arg Val Thr Ala
35 40 45

Ser Ala Ser Gly Lys Asn Asp Asn Gly Val Val Glu Asp Val Asp Met
50 55 60

Gly Lys Arg Gly Met Leu Lys Gly Val Ala Gly Ala Leu Ala Ala Val
65 70 75 80

Leu Pro Ala Val Ile Ala Lys Lys Ala Ser Ala Ala Glu Glu Gln Gly
85 90 95

Val Ala Ser Ser Arg Met Ser Tyr Ser Arg Phe Leu Glu Tyr Leu Asp
100 105 110

Met Asp Arg Val Lys Lys Val Asp Leu Tyr Glu Asn Gly Thr Ile Ala
115 120 125

Ile Val Glu Ala Val Ser Pro Glu Leu Gly Asn Arg Val Gln Arg Val
130 135 140

Arg Val Gln Leu Pro Gly Thr Ser Ser Glu Leu Leu Ser Lys Phe Arg
145 150 155 160

Ser Lys Asn Val Asp Phe Ala Ala His Ser Pro Gln Glu Asp Ser Gly
165 170 175

Ser Val Ile Leu Asn Leu Ile Gly Asn Leu Ala Phe Pro Leu Leu Leu
180 185 190

Val Gly Gly Leu Phe Phe Leu Ser Arg Arg Ser Gln Gly Gly Met Gly
195 200 205

Pro Gly Gly Pro Gly Asn Pro Met Ala Phe Gly Lys Ser Lys Ala Lys
210 215 220

Phe Gln Met Glu Pro Asn Thr Gly Ile Thr Phe Gln Asp Val Ala Gly
225 230 235 240

Val Asp Glu Ala Lys Gln Asp Phe Met Glu Val Val Glu Phe Leu Lys
245 250 255

Arg Pro Glu Arg Phe Thr Ala Val Gly Ala Lys Ile Pro Lys Gly Val
260 265 270

Leu Leu Val Gly Pro Pro Gly Thr Gly Lys Thr Leu Leu Ala Lys Ala
275 280 285

Ile Ala Gly Glu Ala Gly Val Pro Phe Phe Ser Ile Ser Gly Ser Glu
290 295 300

Phe Val Glu Met Phe Val Gly Val Gly Ala Ser Arg Val Arg Asp Leu
305 310 315 320

Phe Lys Lys Ala Lys Glu Asn Ala Pro Cys Ile Val Phe Val Asp Glu
325 330 335

Ile Asp Ala Val Gly Arg Gln Arg Gly Thr Gly Ile Gly Gly Gly Asn
340 345 350

Asp Glu Arg Glu Gln Thr Leu Asn Gln Leu Leu Thr Glu Met Asp Gly
355 360 365

Phe Glu Gly Asn Thr Gly Val Ile Val Ile Ala Ala Thr Asn Arg Ala
370 375 380

Asp Ile Leu Asp Ala Ala Leu Leu Arg Pro Gly Arg Phe Asp Arg Gln
385 390 395 400

Val Ser Val Asp Val Pro Asp Val Lys Gly Arg Thr Asp Ile Leu Lys
405 410 415

Val His Ala Ser Asn Lys Lys Phe Ala Asp Asp Val Ser Leu Asp Ile
420 425 430

Ile Ala Met Arg Thr Pro Gly Phe Ser Gly Ala Asp Leu Ala Asn Leu
435 440 445

Leu Asn Glu Ala Ala Ile Leu Thr Gly Arg Arg Gly Lys Thr Ala Ile
450 455 460

Ser Ala Lys Glu Ile Asp Asp Ser Ile Asp Arg Ile Val Ala Gly Met
465 470 475 480

Glu Gly Thr Val Met Thr Asp Gly Lys Ser Lys Ser Leu Val Ala Tyr
485 490 495

His Glu Val Gly His Ala Ile Cys Gly Thr Leu Thr Pro Gly His Asp
500 505 510

Ala Val Gln Lys Val Thr Leu Ile Pro Arg Gly Gln Ala Arg Gly Leu
515 520 525

Thr Trp Phe Ile Pro Gly Glu Asp Pro Thr Leu Ile Ser Lys Gln Gln
    530   535   540

Ile Phe Ala Arg Ile Val Gly Ala Leu Gly Gly Arg Ala Thr Glu Gln
545   550   555   560

Val Val Phe Gly Asp Ala Glu Val Thr Thr Gly Ala Ser Ser Asp Leu
                565   570   575

Gln Gln Val Thr Ser Met Ala Lys Gln Met Val Thr Val Phe Gly Met
            580   585   590

Ser Asp Ile Gly Pro Trp Ala Leu Met Asp Pro Ser Ser Gln Gly Gly
        595   600   605

Asp Met Ile Met Arg Met Met Ala Arg Asn Ser Met Ser Glu Lys Leu
    610   615   620

Ala Glu Asp Ile Asp Lys Ala Val Lys Ala Ile Ser Asp Glu Ala Tyr
625   630   635   640

Glu Val Ala Leu Gly His Ile Arg Asn Asn Arg Thr Ala Met Asp Lys
                645   650   655

Ile Val Glu Val Leu Leu Glu Lys Glu Thr Leu Ser Gly Ala Glu Phe
            660   665   670

Arg Ala Ile Leu Ser Glu Tyr Thr Glu Ile Pro Ala Glu Asn Arg Val
        675   680   685

Ser Asp Asn Gln Ala Ala Pro Val Ala Val
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<212> DNA
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<220>
<223> Description of Artificial Sequence: Primer

<400> 10
caggaaacag ctatgacc 18

<210> 11
<211> 19
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 11
ctaaagggaa caaaagctg 19

<210> 12
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 12
tgtaaaacga cggccagt 18

<210> 13
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 13
gcgatatcga cccaaggtgt gtagagaagg ggat 34

<210> 14
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 14
gcgagctcgc gactgatgca actcacccat gaa 33

<210> 15
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
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<400> 15
cccaaatgct tggagccagc gacct 25

<210> 16
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
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<400> 16
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<210> 17
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
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<400> 17
agtcgacccc tgtcagactt cttga 25

<210> 18
<211> 36
<212> DNA
<213> Artificial Sequence

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<400> 18
atggcgcgcc gcactcacgt gaggaattgc acctcc 36

<210> 19
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
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<400> 19
gcgagctctg ggaattgcgc atgggaaact gg 32

<210> 20
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 20
ctggctaccc aaaccgcgtc ggaga 25

<210> 21
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
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<400> 21
atcccgggtg atacgttgtg catatttggt gttgc 35

<210> 22
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<212> DNA
<213> Artificial Sequence

<220>
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<400> 22
gcgagctctg atacaagagc gtcgatgctc ca 32

<210> 23
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 23
gcgctgcaga tttcatttgg agaggacacg 30

<210> 24
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
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<400> 24
cgcggccggc ctcagaagaa ctcgtcaaga aggcg 35

<210> 25
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 25
gctgacacgc caagcctcgc tagtc 25

<210> 26
<211> 33

<212> DNA
<213> Artificial Sequence

<220>
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<400> 26
gcgagctcgc gactgatgca actcacccat gaa 33

<210> 27
<211> 32
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<220>
<223> Description of Artificial Sequence: Primer

<400> 27
gcgagctctg ggaattgcgc atgggaaact gg 32

<210> 28
<211> 32
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<220>
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<400> 28
gcgagctctg atacaagagc gtcgatgctc ca 32

<210> 29
<211> 25
<212> DNA
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<220>
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<400> 29
gatggtgatg gtgacagcga ggatc 25

<210> 30
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<400> 30
cgacgtgaag cctcgctctc atttcc 26

<210> 31
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cgatctcctt caagggaacc tagtgctg 28

<210> 32
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<210> 33
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<400> 33
cgtagcgtct tccaggatgt cctac 25

<210> 34
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<400> 34
gcttggcctc gtctactccc gcaac 25